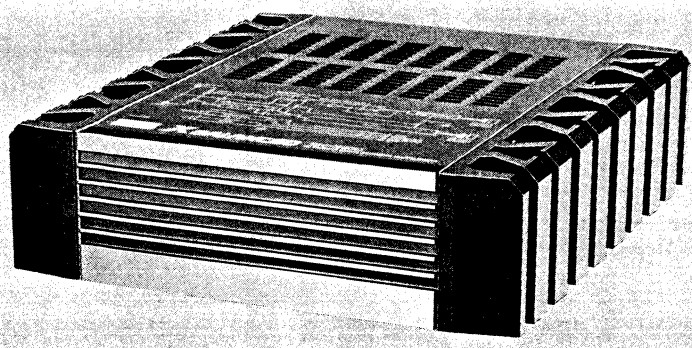
# SERVICE MANUAL

## STEREO HIGH POWER AMPLIFIER

# SANSUI SM-X500



Sansui

SANSUI ELECTRIC CO., LTD.



## •SPECIFICATIONS

**Maximum output power**
(1kHz, 10% total harmonic distortion)
Stereo operation ..... 60 watts per channel into 4 ohms
Monaural (BTL) operation ..... 120 watts per channel into 4 ohms
**Load impedance**..... 4 ohms
**Input sensitivity and impedance** (1 kHz) ..... 100mV/10 kohms
**Signal to noise ratio** (A network) ..... 90 dB
**Frequency response**..... 20 Hz to 40 kHz +3 dB, —3 dB
**Power requirements** ..... DC 12.0V (Usable: 10,8~15.6V) Rated: 14.4V negative ground
**Current consumption** ..... 22A Maximum
**Dimensions**..... 200 mm (7-7/8″)W 65 mm (2-9/16″)H 236 mm (9-5/16″)D
**Weight**..... 2.5 kg (5.6 lbs) net

* **Design and specifications subject to changes without notice for improvements.**

# CAUTION

1. Some printed circuit boards are not supplied as the assembled. To separate these in this service manual, the stock No's are not indicated at the ends of the board names. However, the individual parts on the circuit boards are provided by orders.

2. Since some of capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors & resistors, which was issued on February 1983.

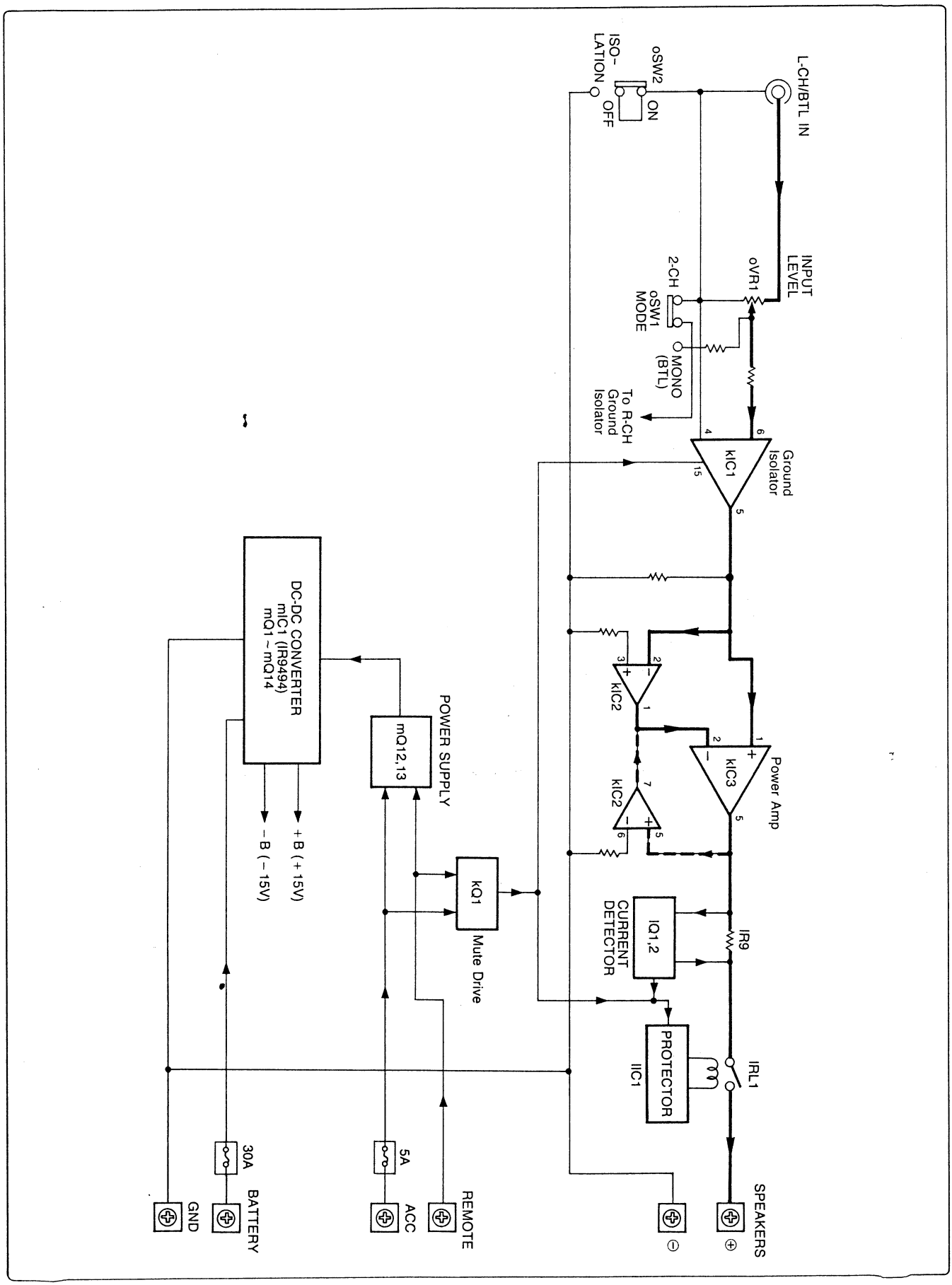
3. Abbreviations in this service manual are as follows.

•Abbreviations List

| | | | |
|---|---|---|---|
| C.R. | : Carbon Resistor | E.B.L. | : Low Leak Bi-Polar Electrolytic Capacitor |
| S.R. | : Solid Resistor | Ta.C. | : Tantalum Capacitor |
| Ce.R. | : Cement Resistor | F.C. | : Film Capacitor |
| M.R. | : Metal Film Resistor | M.P. | : Metalized Paper Capacitor |
| F.R. | : Fusing Resistor | P.C. | : Polystyrene Capacitor |
| N.I.R. | : Non-Inflammable Resistor | G.C. | : Gimmic Capacitor |
| A.R. | : Array Resistor | A.C. | : Array Capacitor |
| C.C. | : Ceramic Capacitor | V.R. | : Variable Resistor |
| C.T. | : Ceramic Capacitor, Temperature Compensation | S.V.R. | : Semi Variable Resistor |
| | | SW. | : Switch |
| E.C. | : Electrolytic Capacitor | Chip R. | : Chip Resistor |
| E.L. | : Low Leak Electrolytic Capacitor | Chip C. | : Chip Capacitor |
| E.B. | : Bi-Polar Electrolytic Capacitor | | |

In case of this set only, supply DC + 12-volt power to BATT, ACC and REMOTE terminals.

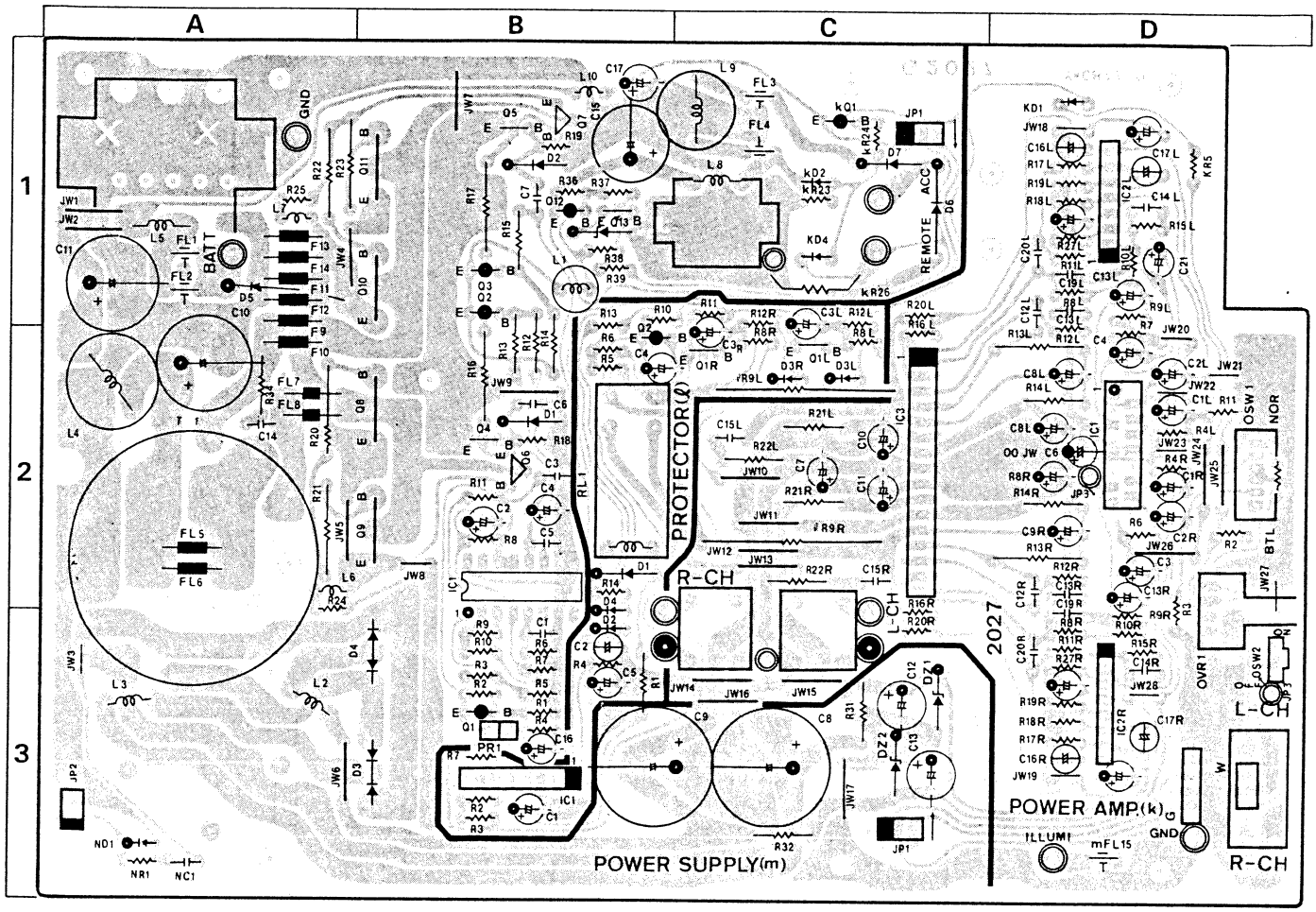
# 1. BLOCK DIAGRAM



# 2. PARTS LOCATION & PARTS LIST

## 2-1. G-2027 Power Amp. & Power Supply Board (Stock No. 00983601)

Component Side




### Parts List

| Parts No. | Stock No. | Description |
|---|---|---|
| •Transistor | | |
| kQ1 | 48229600 | DTA114ES |
| •IC | | |
| kIC1 | 48259300 | TA7414P |
| kIC2 | 46078900 | M5218L |
| kIC3 | 48065400 | STK4913 |
| •Diode | | |
| kD1 | 48225600 | 1SS133 |
| kD2 | 48225600 | 1SS133 |
| kD4 | 48225600 | 1SS133 |
| kC2 | 48155800 | 1μF 50V E.C. |
| kC3 | 46302700 | 4.7μF 50V E.C. |
| kC4 | 46296000 | 470μF 16V E.C. |
| kC6 | 46310300 | 0.1μF 100V E.C. |
| kC15 | 46283700 | 0.047μF 50V F.C. |
| kC16 | 48165700 | 2.2μF 50V E.B. |
| kC17 | 48360700 | 4.7μF 16V E.B. |
| kC22 | 46689500 | 0.01μF 50V F.C. |
| kFL1 | 46612800 | Common Filter |
| •Transistor | | |
| lQ1 | 03064001 | 2SC1904 |
| lQ2 | 46367001 | 2SA1115 |
| •IC | | |
| lIC1 | 46578600 | μPC1237H |
| •Diode | | |
| lD1 | 48365700 | 1SR124-100A |

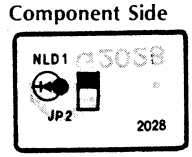
| Parts No. | Stock No. | Description |
|---|---|---|
| lD2 | 48225600 | 1SS133 |
| lD3 | 48225600 | 1SS133 |
| lD4 | 48225600 | 1SS133 |
| lC1 | 46293100 | 47μF 10V E.C. |
| lC2 | 48101500 | 100μF 6.3V E.B. |
| lRL1 | 48183100 | Relay |
| •Transistor | | |
| mQ1 | 46581601 | 2SA992 |
| mQ2 | 46614001 | 2SA1283 |
| mQ3 | 46614001 | 2SA1283 |
| mQ4 | 46614101 | 2SC3243 |
| mQ5 | 46614101 | 2SC3243 |
| mQ6 | 48241101 | 2SC3179 |
| mQ7 | 48241101 | 2SC3179 |
| mQ8 | 46636201 | 2SC3300 |
| mQ9 | 46636201 | 2SC3300 |
| mQ10 | 46636201 | 2SC3300 |
| mQ11 | 46636201 | 2SC3300 |
| mQ12 | 48370501 | 2SA1150 |
| | or 48370701 | 2SB810 |
| mQ13 | 46367101 | 2SC2603 |
| •IC | | |
| mIC1 | 46534100 | μPC494C |
| | or 48225400 | IR9494 |
| •Diode | | |
| mD1 | 48365700 | 1SR124-100A |

Parts List <G-2027>

| Parts No. | Stock No. | Description |
|---|---|---|
| mD2 | 48365700 | 1SR124-100A |
| mD3 | 48491700 | CTG33S |
| mD4 | 48491600 | CTG33R |
| mD5 | 03115700 | ERD03-02J |
| mD6 | 03117700 | 10E-2 |
| mD7 | 48365700 | 1SR124-100A |
| mPR1 | 46535400 | PTH487A01BH471TS Posistor |
| •Zener Diode | | |
| mDZ1 | 46114500 | 05Z15-Y |
| mDZ2 | 46114500 | 05Z15-Y |
| mDZ3 | 46111800 | 05Z6.2-Y |
| mR16 | 46624300 | 100Ω 2W N.I.R. |
| mR17 | 46624300 | 100Ω 2W N.I.R. |
| mR20 | 46621900 | 1Ω 2W N.I.R. |
| mR21 | 46621900 | 1Ω 2W N.I.R. |
| mR22 | 46621900 | 1Ω 2W N.I.R. |
| mR23 | 46621900 | 1Ω 2W N.I.R. |
| mC1 | 46692800 | 1000pF 50V F.C. |
| mC2 | 46302800 | 10μF 50V E.C. |
| mC3 | 46695200 | 0.01μF 50V F.C. |
| mC6 | 46694600 | 5600pF 50V F.C. |
| mC7 | 46694600 | 5600pF 50V F.C. |
| mC8 | 48496900 | 3300μF 35V E.C. |
| mC9 | 48496900 | 3300μF 35V E.C. |
| mC10 | 46604700 | 1000μF 16V E.C. |
| mC11 | 48499300 | 2200μF 16V E.C. |
| mC12 | 46294400 | 220μF 16V E.C. |
| mC13 | 46294400 | 220μF 16V E.C. |
| mC14 | 46695200 | 0.01μF 50V F.C. |
| mC15 | 46296100 | 1000μF 16V E.C. |
| mC16 | 46310300 | 0.1μF 100V E.C. |
| mC17 | 46295200 | 47μF 16V E.C. |
| mC18 | 48235600 | 1μF 25V E.C. |
| mC19 | 48235600 | 1μF 25V E.C. |
| mC20 | 46689500 | 0.01μF 50V F.C. |
| mFL1 | 48196900 | Filter Capacitor |
| mFL2 | 48196900 | Filter Capacitor |
| mFL3 | 48196900 | Filter Capacitor |
| mFL4 | 48196900 | Filter Capacitor |
| mL2 | 48234700 | SN Coil |
| mL3 | 48234700 | SN Coil |
| mL9 | 46273800 | 50μH Filter Coil |
| mL1 | 46090000 | 1.0mH Inductor |
| mL4 | 46534200 | 10μH Inductor |
| mL6 | 46204500 | 10μH Inductor |
| mL7 | 46204500 | 10μH Inductor |
| mL10 | 48184900 | Inductor |
| mL5 | 46636000 | Choke Coil |
| mL8 | 46533300 | 3mH Choke Coil |
| mT1 | 48491800 | Transformer, DC-DC Converter |
| mFL5 | 48493000 | Inductor |
| mFL6 | 48493000 | Inductor |
| mFL7 | 48493000 | Inductor |
| mFL8 | 48493000 | Inductor |
| mFL9 | 48493000 | Inductor |
| mFL10 | 48493000 | Inductor |
| mFL11 | 48493000 | Inductor |
| mFL12 | 48493000 | Inductor |
| mFL13 | 48493000 | Inductor |
| mFL14 | 48493000 | Inductor |
| •Diode | | |
| nD1 | 48225600 | 1SS133 |
| oVR1 | 48492300 | 10kΩ (B) V.R., INPUT LEVEL |
| oSW1 | 46177200 | Slide SW., MODE (MONO/2-CH) |
| oSW2 | 46394000 | Slide SW., ISOLATION |

## 2-2. G-2028 Power Indicator L.E.D. Board

Component Side

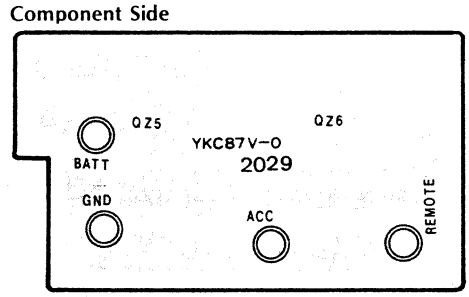



Parts List

| Parts No. | Stock No. | Description |
|---|---|---|
| •LED | | |
| nLD1 | 46176900 | TLS-123, POWER |

## 2-3. G-2029 Fuse Board

Component Side

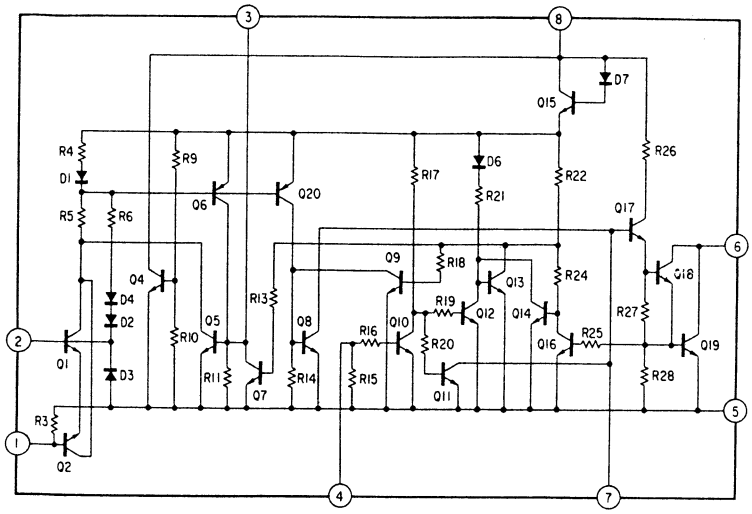



Parts List

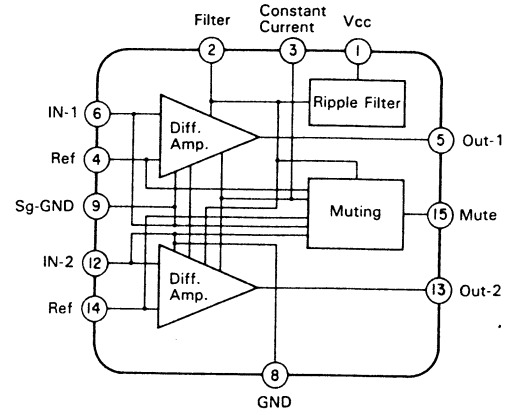
| Parts No. | Stock No. | Description |
|---|---|---|
| qZ8 | 48492800 | 30A Blade Fuse |
| qZ9 | 48000200 | 5A Blade Fuse |
| qZ5 | 48492900 | Blade Fuse Holder |

# 3. INTERIOR BLOCK DIAGRAM OF IC

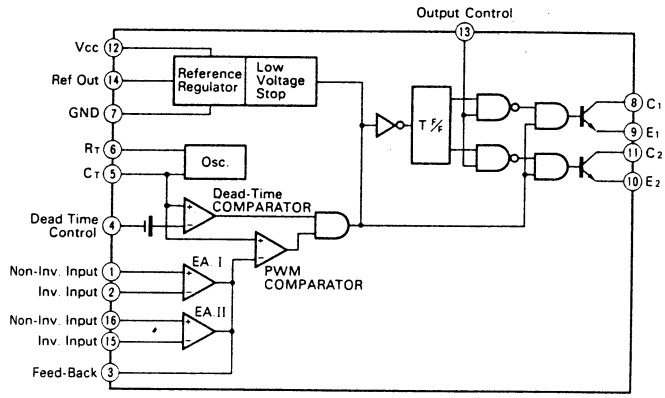
•μPC1237H (Protector)



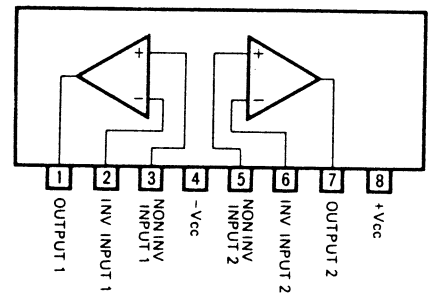

•TA7414P (Ground Isolator)



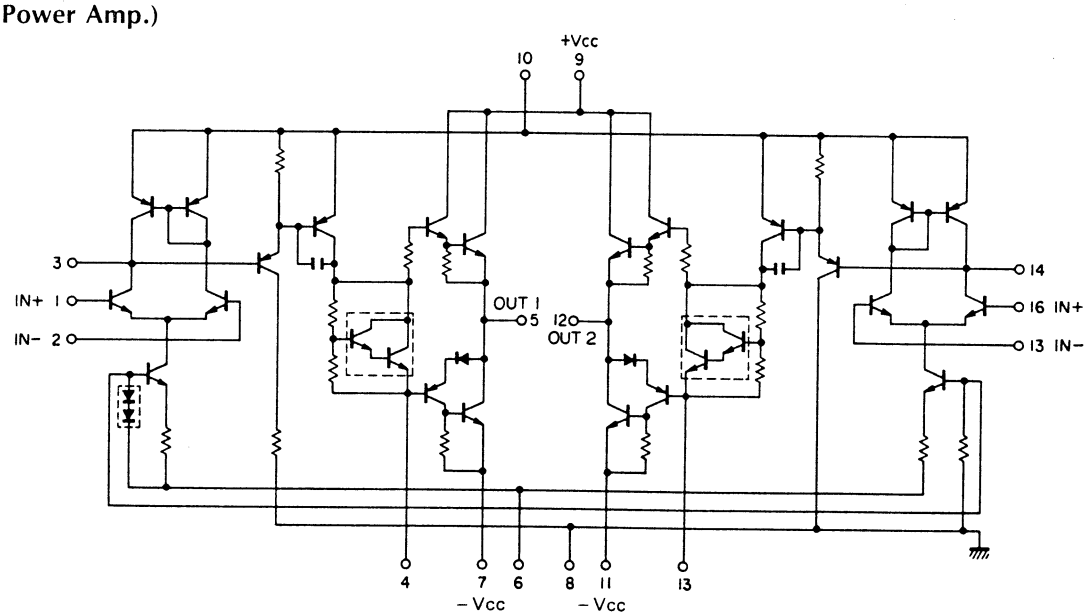

•μPC494C/IR9494 (Switching Regulator Control)




•M5218L (Pre Amp.)



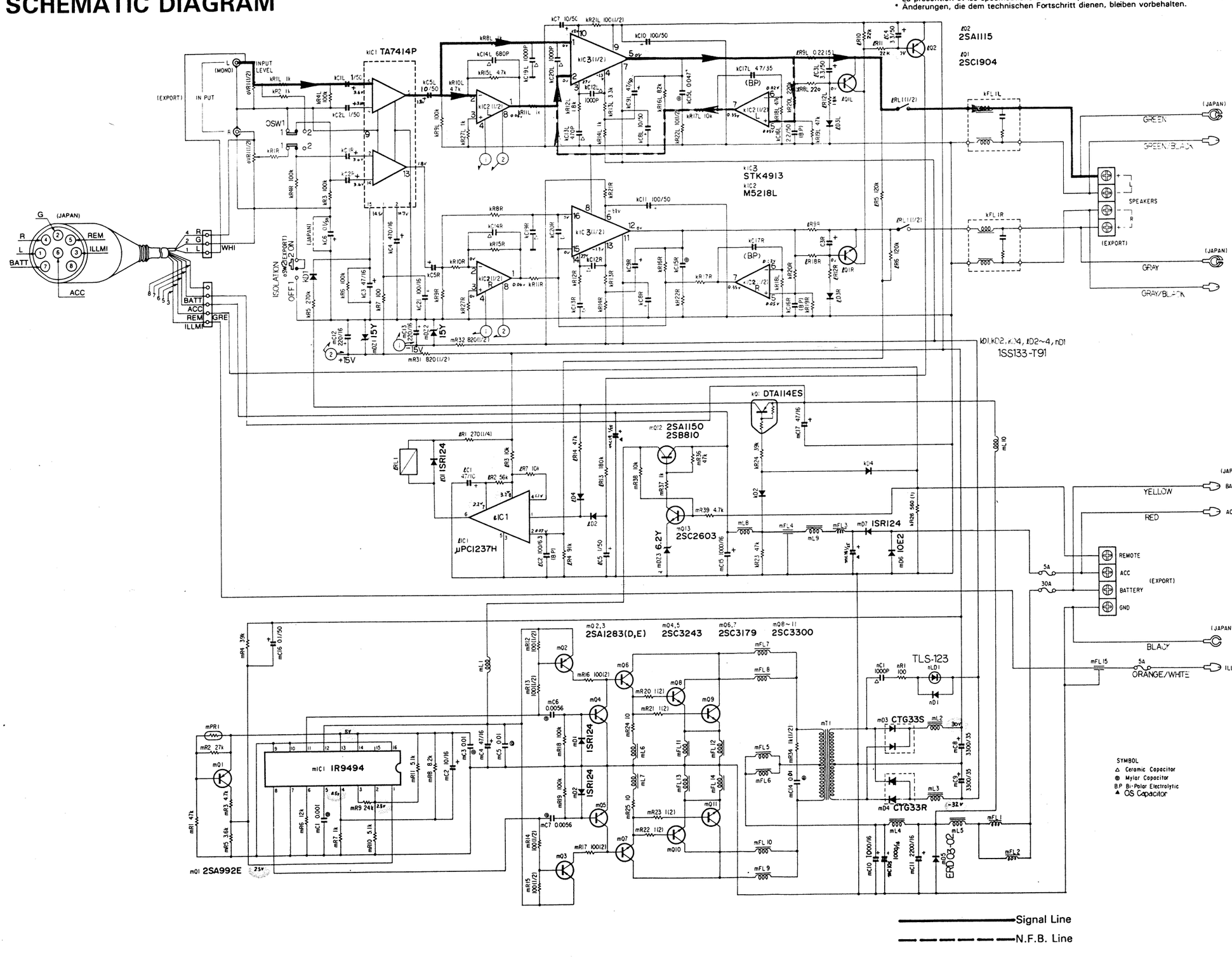

•STK4913 (Power Amp.)



| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|

# 4. SCHEMATIC DIAGRAM

- Design and specifications subject to change without notice for improvement.
- La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
- Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.




SYMBOL
△ Ceramic Capacitor
◎ Mylar Capacitor
BP Bi-Polar Electrolytic
▲ OS Capacitor

2SA992 2SC3179
2SA1283
2SC3243

2SC1904 2SC3300

2SA1115
2SA1150
2SC2603
2SB810
DTA114ES

M5218L

STK4913

μPC494C
IR9494
Dot or Slit or Line

μPC1237H TA7414P

CTG33S

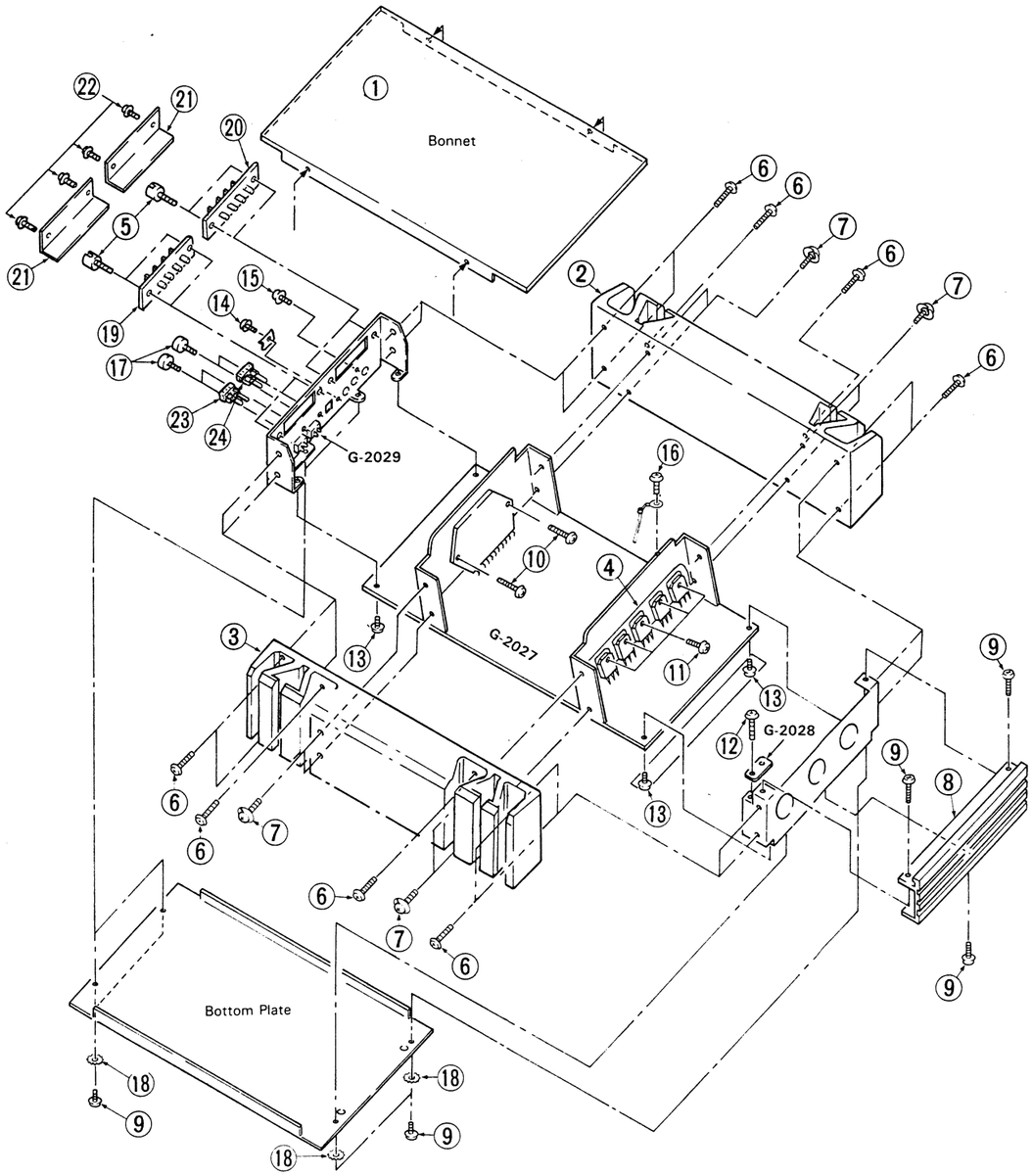
CTG33R

1SR124-100A
TLS-123

1SS133
10E2
ERD03-C2

05Z6.2
05Z15

# 5. EXPLODED VIEW & PARTS LIST



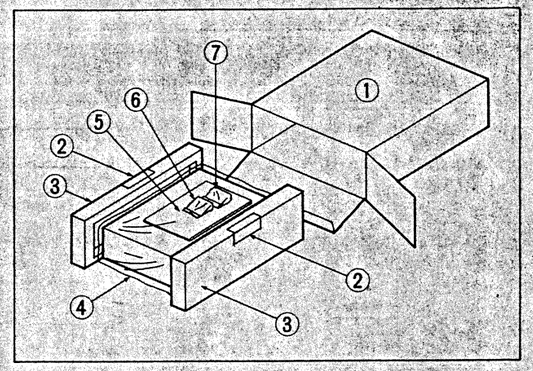

**Parts List**

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 67046400 | Bonnet |
| 2 | 67045900 | Left Heat Sink |
| 3 | 67045800 | Right Heat Sink |
| 4 | 67047600 | Sheet for TR |
| 5 | 48519500 | M4 Screw (Terminal) |
| 6 | 48519300 | M3X10 Pan Head SEMS Screw |
| 7 | 48519400 | M3X15 Pan Head SEMS Screw |
| 8 | 67046100 | Front Panel |
| 9 | 46319500 | M3X6 Binding Head Screw |
| 10 | 48509000 | M3X6 Binding Head Screw |
| 11 | 46319600 | M3X12 Binding Head Screw |
| 12 | 13125900 | M3X10 Binding Head Tapping Screw |
| 13 | 00421900 | M3X6 Bindng Head Tapping Screw |
| 14 | 46268800 | M2.6X4 Pan Head Screw |
| 15 | 46267900 | M3X8 Binding Head Tapping Screw |
| 16 | 46267700 | M3X6 Binding Head Screw |
| 17 | 48496600 | M2X6 Binding Head Tapping Screw |
| 18 | 48526800 | Toothed Lock Washer M3 |
| 19 | 48520200 | 4P Terminal·REMOTE·ACC·BATTERY·GND |
| 20 | 48521900 | 4P Terminal SPEAKERS |
| 21 | 67053900 | Terminal Cover |
| 22 | 48519600 | M3X6 Binding Head Screw |
| 23 | 48492800 | Blade Fuse 30A |
| 24 | 48000200 | Blade Fuse 5A |



# 6. PACKING & PARTS LIST

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 67046900 | Carton Case |
| 2 | 47228800 | Mounting Holder |
| 3 | 47231620 | Styrofoam Packing |
| 4 | 47229100 | Vinyl Bag |
| 5 | 49011200 | Operating Instruction |
| 6 | 67053600 | Mounting Screw Ass'y |
| 6-1 | ——— | M4x6 Binding Head Screw (4ea) |
| 6-2 | ——— | M5x16 Binding Head Tapping Screw (4ea) |
| 6-3 | ——— | M4x8 Binding Head Screw (1ea) |
| 6-4 | ——— | M4 Toothed Lock Washer (1ea) |
| 7 | 48528700 | Terminals Ass'y |



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